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Supervisor

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PhD project Title:

Aptamers and nano-ceptors: green strategy for therapeutic and theranostic purposes

Research summary:

Aptamers are short, synthetic, single stranded oligonucleotides, that bind with high affinity and selectivity any studied target, thanks to their 3D structure, such as antibodies. Compared to monoclonal antibodies (mAbs), which are exclusively biologically derived, aptamers are purely synthetic, cheap, and robust; moreover, they are more sustainable since they do not require the use of animals. The aim of this project is to select aptamers capable of binding specifically to certain proteins including macromolecular structures such as viral capsids and envelopes. The selected aptamers can be used to bind and reduce the downstream pathways of some pathogens, and to develop nano-ceptors, nanostructures used to instantly detect protein biomarkers in complex matrix. This project is in collaboration with Ulisse Biomed S.p.A.